

Appl. No. 09/603,184  
Amdt. Dated July 27, 2005  
Reply to Office Action of May 20, 2005

Attorney Docket No. 81784.0211  
Customer No.: 26021

### **REMARKS/ARGUMENTS**

Claims 1-10 were pending in the Application. By this Amendment, claims 1, 3, 4 and 8 are being amended, claim 10 is being cancelled and new claims 11-13 are being added, to advance the prosecution of the application. No new matter is involved.

In Paragraph 2 on page 2 of the Office Action, claims 8 and 9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. More particularly, it is said with respect to claim 8 that it is unclear how a delay time for the first delay circuit corresponds to a sum of an interpolation processing time of the interpolation circuit and a delay time of the second delay circuit, without considering the delay time introduced by the claimed LPF. In response, Applicants are amending claim 8 to recite "a delay time of said first delay circuit is determined based on a sum of an interpolation processing time of said interpolation circuit and a delay time of said second delay circuit"(emphasis added). As so amended, claim 8 is submitted to be clear and definite. Similar comments apply to claim 9 which depends from and contains all of the limitations of claim 8.

In Paragraph 4 which begins on page 3 of the Office Action, claims 1, 2 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,337,089 of Fisch in view of U.S. Patent 6,411,333 of Auld, et al. In Paragraph 5 which begins on page 5 of the Office Action, claims 3-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fisch and Auld, et al. and further in view of Admitted Prior Art (Fig. 3, and line 17 of page 1 through line 9 of page 2 of the Specification). These rejections are respectfully traversed, particularly in view of the amendments being made herein to the claims.

The present invention relates to a noise cancel circuit for removing noise from an audio signal. In contrast, Fisch relates to noise removal for an image signal. Audio and image signals differ greatly.

Such difference can be more readily understood by referring to Fig. 2 of the present Application. The illustrated waveform is typical for an audio signal, but is completely different from an image signal which includes both vertical and horizontal frequencies. Because of these differences, techniques for image signal treatment, such as the technique taught in Fisch, are not applicable to audio signals.

The reference to Auld relates only to treatment of image signals.

Furthermore, Fig. 8 of Fisch does not show or suggest the feature in accordance with the present invention that the noise portion of the detected radio signal is interpolated by a signal output from the interpolation circuit. According to the description, from line 64 of column 8 to line 3 of column 9 of Fisch, the multiplexer S5 inputs are switched to the output thereof at the 60Hz field rate, the switching being effected by an  $n \bmod 2$  control signal, with  $n$  being the field number. It is clear that Fisch does not employ an interpolated signal for the noise part of the input signal.

As amended, claim 1 is submitted to clearly distinguish patentably over the cited references. As amended, claim 1 defines a noise cancel circuit for removing noise components in "an input audio signal". The interpolation circuit performs interpolation processing on the input audio signal. The noise cancel circuit includes "an LPF for eliminating high frequency components of the input audio signal". The noise cancel circuit includes "a noise detection circuit for detecting the noise portion of said input audio signal". In the noise cancel circuit "The input audio signal has a frequency within the audio frequency band, and the noise portion of said input

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audio signal is changed to an output signal from said interpolation circuit according to an output signal from said noise detection circuit". As so amended, claim 1 is submitted to clearly distinguish patentably over the cited art, for the reasons set forth above.

Claims 2-9 depend, directly or indirectly from, and contain all of the limitations of claim 1, so that such claims are also submitted to clearly distinguish patentably over the art.

New claim 11 depends from and further defines claim 1 in terms of the input audio signal being an FM radio signal and in which the LPF passes a main signal and eliminates sub-signals and pilot signals. New claim 12 depends from and further defines claim 1 in terms of a timer controlling a timing of changing the noise portion of the input audio signal to the output signal from the interpolation circuit. New claim 13 depends from and further defines claim 1 in terms of a switch for changing the noise portion of the input audio signal to the output signal from the interpolation circuit according to the output signal from the noise detection circuit. Claims 11-13 depend from and contain all of the limitations of claim 1, in addition to adding the additional limitations noted. Therefore, such claims are also submitted to clearly distinguish patentably over the prior art.

In conclusion, claims 1-9 and 11-13 are submitted to clearly distinguish patentably over the prior art for the reasons discussed above. Therefore, reconsideration and allowance are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6846 to discuss the steps necessary for placing the application in condition for allowance.

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If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,  
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